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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/507,284	09/10/2004	Keith C. Corkwell	3211R-01	2852

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EXAMINER

COSTALES, SHRUTI S

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/507,284

Applicant(s)

CORKWELL ET AL.

Examiner

Shruti S. Costales

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/7/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement submitted on January 7, 2005 was filed in compliance with the provisions of 37 CFR § 1.97. Accordingly, the information disclosure statement filed by the applicant has been considered by the Examiner.

Specification

2. The abstract of the disclosure is objected to because the applicant makes improper use of legal phraseology, such as "comprises". Further, the abstract does not clearly set forth that which is new in the art to which the invention pertains. See MPEP § 608.01(b).

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Art Unit: 1714

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

3. Claims 1 and 15 are objected to because of the following minor informalities:
 - (i) In claim 1 element (C)(3) appears to be missing, therefore it is suggested that the applicant renumber the elements such as element (C)(4) becomes (C)(3).
 - (ii) An improper tab appears before "15.", which should be deleted so that all the claims are similarly spaced.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 16 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. More particularly, claim 16 recites a method of providing "performance advantages", wherein it is not clear to one of ordinary skill in the

Art Unit: 1714

art what is meant by "performance advantages" and what characteristics would meet such a requirement. Furthermore, "performance advantages" is a very broad requirement encompassing advantages such as stability, improvement in combustion, etc., and it is not clear whether one or all of such advantages must be met to meet the requirement of providing "performance advantages". Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being dependent from a rejected base claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

Art Unit: 1714

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-2 and 4-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Filippini et al. (U.S. Patent Number 6,913,630) in view of *Hawley's Condensed Chemical Dictionary 13th Ed.* and Wenzel (U.S. Pre-Grant Publication Number 2003/0033748).

Filippini discloses liquid hydrocarbon fuels having ethanol (Col. 4, lines 22-25), wherein the liquid hydrocarbon fuel is any diesel fuel (Col. 4, lines 40-48). It is also disclosed that an emulsifier is added to the fuel (Col. 2, lines 12-32) and the emulsifier includes but is not limited to (i) at least one fuel-soluble product made by reacting at least one hydrocarbyl-substituted carboxylic acid acylating agent with ammonia or an amine, (ii) at least one of an ionic or a nonionic compound having a hydrophilic-lipophilic balance (HLB) of about 1 to about 40, and (iii) a mixture of (i) and (ii) (Col. 5, lines 6-25). An emulsifier including an amino alkylphenol, which is well-known as a Mannich base, is further disclosed which is made by reacting alkylphenol, an aldehyde, and an amine (see claims 1 and 3), wherein the alkylphenol has an alkyl group selected from C₆ to C₁₇₀ (see claim 4) therein intrinsically including dodecylphenol which is a C₁₂ alkylphenol, the aldehyde is formaldehyde (see claim 7), and the amine is

Art Unit: 1714

diethanolamine (see claim 9). It is to be noted that an emulsifier is a type of surfactant as noted by *Hawley's*.

Further, the reaction product of a hydrocarbyl-substituted polycarboxylic acid or anhydride and an amino alcohol includes the reaction product of an alkanol amine such as dimethylethanol amine, which is a tertiary alkanol amine, with polyisobutene substituted succinic anhydride (Col. 11, lines 24-57). The ionic or nonionic compounds having an HLB of about 1 to about 40 include ethoxylated alcohols, ethoxylated alkylphenols, alcohols, ethoxylated fatty acids, ethoxylated fatty esters and oils, etc. (Col. 20, lines 20-53). A water-soluble compound is further disclosed by Filippini, wherein this compound includes organic amine nitrates, nitrate esters, azides, nitramines and nitro compounds (Col. 21, lines 63-67 and Col. 22, lines 1-29). The water-soluble compound functions as a combustion improver, which is characterized by its ability to increase the mass burning rate of the fuel composition, wherein the presence of such a combustion improver has the effect of improving the power output of an engine (Col. 22, lines 30-37).

The diesel is present in an amount of 50% to 95% by weight (Col. 4, lines 40-59). The emulsifier is present in an amount of 0.05% to about 20% by weight (Col. 5, lines 26-31). The water-soluble compound functioning as a combustion improver is present in a concentration of about 0.001 to about 1% by weight (Col. 22, lines 38-41). Filippini further discloses that all compression-ignition (internal combustion) engines may be operated (Col. 26, lines 25-37) by using the fuel composition described above. The examples in Filippini discloses stable compositions suitable for combustion in diesel

Art Unit: 1714

engines (Col. 27, lines 5-14), therein intrinsically including providing performance advantages such as stability and improvement in combustion due to the presence of the combustion improver.

The difference between Filippini and the presently claimed invention is the requirement that the ethanol comprises anhydrous ethanol containing up to about 0.1% by weight water, fuel grade ethanol containing up to 0.1% by weight water, or mixtures thereof, and the ethanol is present in an amount of 0.5 to 25% by weight.

Wenzel, which is drawn to the use of aqueous or water-soluble alcohols as additives in combustible liquid fuels (Page 1, paragraph [0003]), discloses adding alcohols having 1 to 2 carbon atoms in an anhydrous state or as a 0.5-5% aqueous solution, preferably a 0.5-1% aqueous ethanol (Page 4, paragraphs [0078]-[0079]).

Wenzel also discloses that the additive ethanol is added to the fuel in a ratio of fuel:ethanol as being 99:1 to 0:100 by volume (see claim 1 of Wenzel), therein implying that the ethanol may be present in the fuel in an amount of 0-99% by volume. Such a broad range of ethanol being added to fuel intrinsically encompasses the range of 0.5 to 25% by weight as presently claimed. Wenzel also discloses biodiesels (Page 20, paragraphs [0404]-[0408]). It would have been obvious to one of ordinary skill in the art to add the specific type and amount of ethanol as disclosed by Wenzel into Filippini's fuel composition because the resulting fuel composition would exhibit greatly improved overall combustion of the fuel while reducing significantly unwanted smoke, particulates, toxic gases, noxious gases (Page 1, paragraph [0003]), thereby obtaining the invention as set forth in the presently cited claims.

Art Unit: 1714

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Filippini in view of *Hawley's* and Wenzel as applied to claims 1-2 and 4-17 above, and further in view of Barbour et al. (U.S. Pre-Grant Publication Number 2004/0068922).

The discussion above in paragraph 7 regarding Filippini, *Hawley's*, and Wenzel is herein incorporated by reference.

The difference between Filippini, *Hawley's*, and Wenzel is the requirement that the diesel fuel contains aromatic hydrocarbons from 3 to 60% by volume, and the HLB value of the surfactant is directly proportional to the aromatic content of the diesel fuel.

Barbour, which is drawn to fuel additive compositions (Page 1, paragraph [0002]) including alcohols (Page 4, paragraph [0041]), discloses that the aromatic content of diesel fuel is typically less than 40% by volume (Page 4, paragraph [0043]). It is to be noted that although Barbour does not explicitly disclose that HLB value of the additive is directly proportional to the aromatic content of the diesel fuel, the combination of Barbour with Filippini in view of *Hawley's* and Wenzel will intrinsically meet such a requirement as both the HLB values and the aromatic content are within the presently claimed ranges. It would have been obvious to one of ordinary skill in the art to use Barbour's specific diesel interchangeably with the Filippini's diesel because the resulting composition will aid in the reduction of deposits within the engine (Page 1, paragraphs [0010]-[0011]), thereby obtaining the invention as set forth in the presently cited claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Although US 4395267, US 4397655, FR 2544738, EP 014992, WO 01/004239, US 427889, US 5360460, and US 2002/014033 are all drawn to fuel additive compositions and have been cited as "X" references on the International Search Report for PCT/US03/07573 of which the present application is a National Stage (371) entry. These cited "X" references have not been used to formulate a prior art rejection because such rejection would be cumulative to the rejections set forth in paragraphs 7-8 above using the patented form of "X" reference US 2002/020106, namely US 6913630.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shruti S. Costales whose telephone number is (571) 272-8389. The examiner can normally be reached on Monday - Friday, 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Art Unit: 1714

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

SSC
Shruti S. Costales
August 17, 2005

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